This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim1 (amended). A system for selectively observing the presence of at least one fluorophore in a test material to be used with a source of ultraviolet incident light comprising:

a) a screen holder;

b) a wavelength conversion screen receivable in and removable ~~form~~ from said screen holder comprising a scintillator which absorbs light of ultraviolet wavelengths and emits light of a narrow bandwidth λ_{s1} to λ_{s2}; and

c) ~~a test material comprising at least one fluorophore positioned such that light passing through the wavelength conversion screen is incident on the material,~~ a detector operable to detect a fluorophore emission wavelength λ_{dm} emitted by a ~~the~~ fluorophore having an excitation wavelength λ_{dx}, in which $\lambda_{s1} < \lambda_{dx} < \lambda_{s2}$~~, and which emits lights at a wavelength λ_{dm} which is detectable by a detector~~.

Claim 2 (amended). ~~A~~ The system according to claim 1 further comprising ~~the~~ a source of ~~U.V.~~ ultraviolet light.

Claim 3 (amended). ~~A~~ The system according to claim 2, ~~in which~~ wherein the source is a mercury ~~vapour~~ vapor lamp.

Claim 4 (amended). ~~A~~ The system according to claim 2, ~~in which~~ wherein the light source is a transilluminator~~ and wherein the wavelength conversion screen, and the test material are arranged sequentially on the transilluminator whereby light passes through each of them~~.

Claim 5 (amended). ~~A~~ The system according to claim 1, wherein the ~~band width~~ bandwidth $\lambda_{s2} - \lambda_{s1}$ is less than 100 nm.

Claim 6 (amended). ~~A~~ The system according to claim [[5]] 1, wherein the bandwidth $\lambda_{s2} - \lambda_{s1}$ is from ~~in the range~~ 10 to 75 nm.

Claim 7 (amended). ~~A~~ The system according to claim 1, wherein λ_{dx} is in the range 370 – 720 nm.

Claim 8 (amended). ~~A~~ The system according to claim 1 wherein the value of Δd ~~where $\Delta \lambda_{dx} - \lambda_{s2}$~~ is less than 100 nm, and wherein $\Delta = \lambda_{dx} - \lambda_{s2}$.

Claim 9 (amended). ~~A~~ The system according to claim 1 ~~in which the fluorophore/scintillator combinations are selected from the combinations in Table 1~~, wherein:

the fluorophore is selected from the group consisting of Pyrene, AMCA, Cascade Blue, Diethylaminocoumarin, Fluorescein, BODIPY FL, SYBR Green I, SYBR Green I, Acridine Orange, Rhodamine 110, Oregon Green 488, Alexa 488, Rhodamine Green, Eosin, Alexa 532, 2',7'-Dimethoxy-4',5'-dichloro-6-carboxyfluorescein, Naphthofluoroscein, Alexa, Ethidium bromide, Cy3, Tetramethylrhodamine, Rhodamine 6G, Alexa 568, Lissamine, Rhodamine, Rhodamine Red, Carboxy-X-rhodamine, Texas Red, BODIPY TR, BODIPY 630/650, BODIPY 650/665, Cy5, Rhodamine 800, and Oxazine 750; and

the scintillator comprises a luminescent center selected from the group consisting of Ce^{3+}/Tb^{3+}, Tb^{3+}, Mn^{4+}; Tl^{+}, Eu^{2+}, Tm^{3+}, Rm^{3+}, Mn^{2+}, Dy^{3+}, and Eu^{3+}.

Claim 10 (amended). ~~A~~ The system according to claim 1 in which the wavelength conversion screen absorbs lights of wavelength less than λ_{s1} ~~whereby substantially no light of such wavelengths is incident on the test material~~.

Claim 11 (amended). ~~A~~ The system according to claim 1, ~~in which~~ wherein:

the detector is operable to detect a first fluorophore emission wavelength λ_{dx} emitted by a first fluorophore and a second fluorophore emission wavelength λ_{dx} emitted by a second fluorophore;

the first emission wavelength is different from the second emission wavelength; and

each fluorophore ~~the test material has at least two fluorophores distributed in it, each of which~~ has an absorption maximum in the range λ_{s1} to λ_{s2} ~~and which have different emission wavelengths λ_{dx}~~.

Claim 12 (canceled).

Claim 13 (canceled).

Claim 14 (canceled).

Claim 15 (amended). ~~A~~ The system according to claim 1 in which the detector is an automated device ~~and is a component of the system~~.

Claim 16 (amended). A system for observing the presence of a fluorophore in a test material comprising:

a) a source of ultraviolet light ~~which is~~ comprising a mercury ~~vapour~~ vapor lamp;

b) a holder for a screen;

c) an exchangeable wavelength conversion screen adapted to be receivable in the screen holder and to be removable therefrom, and comprising a scintillator which absorbs light of ultraviolet wavelengths and emits light of a narrow bandwidth λ_{s1} [[-]] to λ_{s2}, where the bandwidth $\lambda_{s2} - \lambda_{s1}$ is less than 100 nm;

d) a support for a test material; and

e) ~~a test material which comprises a fluorophore having an excitation wavelength λ_{dx} and an emission wavelength λ_{dm}; and f)~~ a detector capable of detecting ~~light of~~ an emission wavelength λ_{dm} generated by a fluorophore contained in a test material, the fluorophore having an excitation wavelength λ_{dx};

wherein the support allows the ~~test material~~ fluorophore to be positioned on the opposite side of the screen to the light source and the detector is located on the side of the test material opposite to the screen.

Claim 17 (amended). The system of claim 16 in which the screen comprises, in sequence, a substrate ~~which is~~ transparent to ultraviolet light, a wavelength converting layer which comprises the scintillator, and a protective layer overlying the wavelength converting layer which is transparent to light of wavelength in the range λ_{s1} [[-]] to λ_{s2}.

Claim 18 (amended). The system of claim 16 in which the scintillator comprises a luminescent ~~centre~~ center selected from the group consisting of Ce^{3+}/Tb^{3+}, Tb^{3+}, Mn^{4+}; Tl^{+}, Eu^{2+}, Tm^{3+}, Rm^{3+}, Mn^{2+}, Dy^{3+}, and Eu^{3+}.

Claim 19 (amended). The system according to claim 18, wherein the scintillator further comprises ~~which comprises~~ a matrix ~~in which the luminescent centre is included,~~ selected from the group consisting of $CeMgAl_{11}O_{19}$, Y_2O_2S, Gd_2O_2S, $LaPO_4$, Y_5SiO_5, $GdMgB_5O_{10}$, $(CaZn)_3(PO_4)_2$, SrB_4O_7, $(SrMg)_2P_2O_7$, YVO_4, and $MgGa_2O_4$.

Claim 20 (amended). The system of claim 19 in which the ~~scintillator comprises a~~ the luminescent center comprises Tm^{3+} ~~centre~~ and ~~an yttrium vanadate~~ the matrix comprises YVO_4 ~~matrix~~.

Claim 21 (amended). A method for observing the presence of at least one fluorophore in a test material using a detector, the method comprising the steps of:

a) providing an exchangeable, first wavelength conversion screen comprising a first scintillator which absorbs light of ultraviolet wavelengths and emits light of a narrow ~~band width~~ bandwidth λ_{s1} [[-]] to λ_{s2};

b) directing incident ultraviolet light through the wavelength conversion screen whereby light having a wavelength in the range λ_{s1} to λ_{s2} is transmitted through the screen;

c) providing a test material~~, which comprises~~ comprising a first fluorophore ~~which~~ that absorbs light at an excitation wavelength around a maximum λ_{dx}, in which $\lambda_{s1} < \lambda_{dx} < \lambda_{s2}$, and that emits light at a wavelength λ_{dm};

d) causing the transmitted light of wavelength in the range $\lambda_{s1} - \lambda_{s2}$ to pass into said test material whereby the fluorophore emits light at said wavelength λ_{dm}; and

e) detecting said emitted light using a detector system which is sensitive to light of wavelength λ_{dm}.

Claim 22 (original). The method of claim 21 in which $\lambda_{s2} - \lambda_{s1}$ is less than 100 nm.

Claim 23 (amended). The method of claim 21, wherein ~~in which in which the fluorophore/scintillator combinations are selected from the combinations in Table 1~~

the fluorophore is selected from the group consisting of Pyrene, AMCA, Cascade Blue, Diethylaminocoumarin, Fluorescein, BODIPY FL, SYBR Green I, SYBR Green I, Acridine Orange, Rhodamine 110, Oregon Green 488, Alexa 488, Rhodamine Green, Eosin, Alexa 532, 2',7'-Dimethoxy-4',5'-dichloro-6-carboxyfluorescein, Naphthofluoroscein, Alexa, Ethidium bromide, Cy3, Tetramethylrhodamine, Rhodamine 6G, Alexa 568, Lissamine, Rhodamine, Rhodamine Red, Carboxy-X-rhodamine, Texas Red, BODIPY TR, BODIPY 630/650, BODIPY 650/665, Cy5, Rhodamine 800, and Oxazine 750; and

the scintillator comprises a luminescent center selected from the group consisting of Ce^{3+}/Tb^{3+}, Tb^{3+}, Mn^{4+}; Tl^{+}, Eu^{2+}, Tm^{3+}, Rm^{3+}, Mn^{2+}, Dy^{3+}, and Eu^{3+}.

Claim 24 (amended). The method of claim 21, wherein ~~in which~~ the test material ~~has~~ further comprises a second fluorophore ~~at least two fluorophores distributed in it~~, wherein the first and second fluorophore each ~~of which~~ has an absorption maximum in the range λ_{s1} to λ_{s2} and ~~which have different~~ the emission wavelength of the first fluorophore is different from the emission ~~wavelengths~~ wavelength λ_{dm} of the second fluorophore.

Claim 25 (amended). The method of claim 21 in which the test material ~~has a~~ further comprises a second fluorophore ~~distributed in it which has~~ having an absorption envelope λ_{db} outside the range λ_{s1} to λ_{s2}, wherein the method further comprises:

f) providing a second wavelength conversion screen which comprises a second scintillator which absorbs light of UV wavelength and emits light at a higher wavelength λ_{dbm} in the range λ_{sb1} to λ_{sb2}, the second scintillator selected such that $\lambda_{sb1} < \lambda_{db} < \lambda_{sb2}$;

g) exchanging the first screen for the second screen;

h) directing incident ultraviolet light through the second wavelength conversion screen whereby light having a wavelength in the range λ_{sb1} to λ_{sb2} is transmitted;

i) causing the transmitted light having a wavelength in the range λ_{sb1} to λ_{sb2} to pass into the test material, whereby the second fluorophore emits light of wavelength λ_{dbm}; and

j) detecting said emitted light of wavelength λ_{dbm} using a detector which is sensitive to light of wavelength λ_{dbm}.

Claim 26 (amended). The method of claim 21 in which the first scintillator comprises a luminescent ~~centre~~ center selected from the group consisting of Ce^{3+}/Tb^{3+}, Tb^{3+}, Mn^{4+}; TI^{+}, Eu^{2+}, Tm^{3+}, Rm^{3+}, Mn^{2+}, Dy^{3+}, and Eu^{3+}.

Claim 27 (amended). The method of claim 26, wherein ~~in which~~ the luminescent centre is incorporated into a matrix selected from the group consisting of $CeMgAl_{11}O_{19}$, Y_2O_2S, Gd_2O_2S, $LaPO_4$, Y_5SiO_5, $GdMgB_5O_{10}$, $(CaZn)_3(PO_4)_2$, SrB_4O_7, $(SrMg)_2P_2O_7$, YVO_4, and $MgGa_2O_4$.

Claim 28 (amended). The method of claim 26 in which the scintillator comprises a Tm^{3+} ~~centre~~ center and the matrix comprises ~~an yttrium vanadate~~ YVO_4 ~~matrix~~.

Claim 29 (amended). The method of claim 21 in which the first fluorophore is selected from the group consisting of Pyrene, AMCA, Cascade Blue, Diethylaminocoumarin, Fluorescein ~~(FAM)~~, BODIPY FL, SYBR Green I, SYBR Green I, Acridine Orange, Rhodamine 110, Oregon Green 488, Alexa 488, Rhodamine Green, Eosin, Alexa 532, 2',7'-Dimethoxy-4',5'-dichloro-6-carboxyfluorescein ~~(JOE)~~, Naphthofluoroscein, Alexa, Ethidium bromide, Cy3, Tetramethylrhodamine, Rhodamine 6G, Alexa 568, Lissamine, Rhodamine, Rhodamine Red, Carboxy-X-rhodamine ~~(ROX)~~, Texas Red, ~~Fluorophore label,~~ BODIPY TR, BODIPY 630/650, BODIPY 650/665, Cy5, Rhodamine 800, and Oxazine 750.

Claim 30 (amended). The method of claim 21 in which the first fluorophore is fluorescein.

Claim 31 (amended). The method of claim 27 in which the first fluorophore is fluorescein.

Claim 32 (new). A method for selectively illuminating a fluorophore comprising:

a) providing an exchangeable wavelength conversion screen comprising a scintillator that absorbs light of ultraviolet wavelengths and emits light of a narrow bandwidth λ_{s1} to λ_{s2};

b) directing incident ultraviolet light through the wavelength conversion screen whereby light having a wavelength in the range λ_{s1} to λ_{s2} is transmitted through the screen;

c) providing a test material comprising a first fluorophore and a second fluorophore, wherein

the first and second fluorophores absorb light at an excitation wavelength around a maximum λ_{dx}, in which $\lambda_{s1} < \lambda_{dx} < \lambda_{s2}$,

the first and second fluorophores emit light at a wavelength λ_{dm}, and

the first fluorophore emission wavelength λ_{dm} is different from the second fluorophore emission wavelength λ_{dm};

d) causing the transmitted light of wavelength in the range $\lambda_{s1} - \lambda_{s2}$ to pass into said test material to cause either the first fluorophore or the second fluorophore to emit its respective emission wavelength λ_{dm}; and

e) detecting the emitted light using a detector system which is sensitive to light of the emitted wavelength λ_{dm}.

Claim 33 (new). The method according to claim 32, wherein the bandwidth $\lambda_{s2} - \lambda_{s1}$ is less than 100 nm.

Claim 34 (amended). The system according to claim 32, wherein the bandwidth $\lambda_{s2} - \lambda_{s1}$ is from 10 to 75 nm and wherein λ_{dx} is in the range 370 – 720 nm.